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ABSTRACT

Literacy and economic development are inextricably linked in the literature, often with little examination. There are five rationales for this relationship: economic objectives, social objectives, political objectives, endogenous pressures, and exogenous pressures. To achieve both understanding of literacy and improved literacy programming, better methods of assessment and program evaluation should be put into place. Prior experience in assessment has been characterized by use of literacy surveys. New efforts to measure literacy include standardized test surveys of literacy and the household survey approach. The ability to analyze the effectiveness of literacy programs and accountability are also needed. Four common myths help to sustain the political and social support for literacy work, but the lack of solid evidence undergirding the claims should lead to concern as well. The myths are as follows: (1) literacy changes the way humans think, their logical abilities, and their intelligence; (2) literacy leads to human "modernization" and to the changing of attitudes about "development"; (3) literacy fosters democratic ideals and increases national productivity; and (4) illiteracy will be eradicated by 2000. The following key ideas are promoting innovation in literacy work: technology, multisectoral materials, material design, mother tongue and second language issues, and sustained leadership. (Appendixes contain 40 endnotes, a 19-item annotated bibliography, 183 references, 3 data tables, and 1 figure.) (YLB)

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NATIONAL CENTER ON ADULT LITERACY

LITERACY AND DEVELOPMENT:
RATIONALES, ASSESSMENT, AND INNOVATION

Daniel A. Wagner
National Center on Adult Literacy
University of Pennsylvania

LRC/NCAL INTERNATIONAL PAPER IP93-1
JUNE 1993

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The National Center on Adult Literacy (NCAL) was established in 1990 by the U.S. Department of Education, with co-funding from the Departments of Labor and Health and Human Services. The mission of NCAL addresses three primary challenges: (1) to enhance the knowledge base about adult literacy, (2) to improve the quality of research and development in the field and (3) to ensure a strong, two-way relationship between research and practice. Through applied research and development and dissemination of the results to researchers, policy makers and practitioners, NCAL seeks to improve the quality of adult literacy programs and services on a nationwide basis. NCAL serves as the largest operating unit of the Literacy Research Center at the University of Pennsylvania.

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LITERACY AND DEVELOPMENT:

RATIONALES, ASSESSMENT, AND ACCOUNTABILITY

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Abstract

Literacy and economic development have existed as terms that are inextricably linked in the literature, often with little examination. As one looks more closely at the rationales for this relationship, it becomes clear that much more needs to be known about the functions and uses of literacy in everyday life, how literacy is linked to productive activity, and how literacy is learned (and taught) across the life-span. In order to achieve both understanding and improved literacy programming, it is crucial that better methods of assessment and program evaluation be put into place. This paper reviews prior experience in assessment, with special attention to the use of literacy surveys, as well as some of the problems with international literacy statistics. The paper concludes with a discussion of innovations in literacy and policy alternatives in the year 2000 and beyond.

INTRODUCTION

There is little debate about whether literacy is a major problem in today's world. Indeed, it is near the top of the policy agenda of most countries in the world, among both industrialized and developing countries. A quick glance at international statistics gives a relative picture of the state of literacy in the world (see Table 1). According to these statistics, almost a billion illiterates remain in 1993, and the prognosis for a reduction, as discussed later in this paper, is not very optimistic. Furthermore, the relatively low rates of illiteracy in industrialized countries are misleading, as countries like the U.S. come to grips with the fact that low literacy in this country may be just as troubling as illiteracy is in some developing countries.

This paper provides an overview of some of the key dimensions of today's *literacy problems* from a perspective that assumes that low literacy levels (by whatever definitions or measurements) are endemic across the globe, and that the rationales that support renewed efforts as well as the barriers to literacy improvement have common elements that should and can be addressed through a better understanding of the nature of literacy and literacy education programs.

A. DEVELOPMENT RATIONALES

Often literacy is understood simply as something that is *good* for the individual and for society. Indeed, unlike many other advocacy domains for social change (such as employee benefits and child care), there are very few critics of greater societal literacy. This is not to say that specialists or the public can agree as to what they *mean* by increased literacy. Note the heated debates over whether literacy should be taught in the native language or a second (usually metropolitan) language, still controversial the world over. Since primary education is already a core institutionalized goal of all nations, the present discussion of development rationales focuses mainly on non-formal and adult literacy programs.

In spite of the broad and worldwide consensus in favor of literacy for all, observers must reconcile the considerable reticence of many national, bilateral, and international agencies to provide strong fiscal (as contrasted with rhetorical) support for adult literacy efforts. Reticence usually seems to depend on the strength of the case that can be made for any particular development objective, and literacy is no exception. Five general rationales for literacy have been put forward over the years, though each has been utilized in the specific context of national economic development plans.[1]

1. ECONOMIC OBJECTIVES

From the poorest village in Bangladesh to the swank boulevards of Paris, one can hear the refrain of the economic rationale for literacy development. Few countries are oblivious to the perception that a literate and skilled populace can have an important impact on the social and economic life of each nation. Numerous claims have purported that a given minimum rate of literacy is a prerequisite for economic growth in developing countries, and headlines can be read in North American newspapers today which proclaim that, in the context of global competition, adult illiteracy will be the economic ruination of previously well-off countries such as Canada and the U.S.[2] Indeed, estimates of the direct cost of adult illiteracy on American business has been estimated at about US$40 billion annually (Mikulecky, 1990).

From the advent in the 1960s of the Experimental World Literacy Programme (discussed below), and up to the 1990 World Conference on Education for All (WCEFA) at Jomtien, claims have been made as to the positive impact on economic productivity of literacy and basic education. Most of the empirical research on this topic comes from a handful of studies that relate number of years of schooling (mostly primary schooling) with income or job productivity. For example, in the agricultural sector, analyses have been completed which support the notion that an additional year of formal schooling can directly affect wages and farm output (see Table 2). Such analyses are among the many which suggest that additional years of schooling lead to returns that are greater than the cost of the education itself.[3]

What is surprising is how little information is available on the economic returns to training in adult literacy and adult basic education. There are few if any empirical studies on the economic impact of major short-term literacy programs in developing or industrialized countries. Most of the available research considers the quite different case of the impact of vocational or adult basic education on the occupational outcomes of workers in industrialized countries.[4] While this evidence suggests the general utility of worker training programs (including literacy and basic skills) in industrialized countries, there is little empirical research as yet to suggest that adult literacy programs are enabling the unemployed to obtain new jobs or to make major career changes, even though anecdotal claims abound.

Regardless of the dearth of research evidence, there remains a strong presupposition that the individual value added from literacy will have a commensurate value added in terms of a nation's productivity. The economic rationale remains an article of faith among advocates of literacy programs, at least in part due to the common belief that industrialized countries are more prosperous primarily because they are more educated and more literate.

2. Social Objectives

Even if literacy has only limited direct economic consequences, it may have secondary social consequences which become important objectives for development planners. For example, demonstrated empirical relationships between literacy and health, fertility, and other aspects of women's lives may be key rationales for literacy programs in many countries.[5] Interestingly, the gender dimension of literacy has rarely been raised in the industrialized countries, as the majority of illiterate

or low literate adults tend to be male. In the developing countries, however, the gender disparity is quite marked (Stromquist, 1990) (see Table 3). In industrialized countries, the secondary consequences of illiteracy vary greatly by ethnic or minority group. In these cases, the secondary consequences of literacy can include lowered rates of incarceration in prisons, welfare dependency, and social disintegration.[6]

Overall, the research evidence for secondary social consequences of literacy may be stronger than that of direct economic consequences. However, as with most sociological analyses of this kind, separating one type of consequence from another is a difficult enterprise.

3. Political Objectives

There is a long tradition of utilizing literacy programs in general, and literacy campaigns in particular, as a way to achieve political goals. In the 1500s, Sweden engaged in one of the earliest known national literacy campaigns in order to spread the state religion through Bible study. The apparent goal was not only religious salvation but also national solidarity. This latter aspect of campaigns remains a potent source of government support of literacy work in many countries. Perhaps most visible are the socialist literacy efforts in the former USSR, China, Cuba, Nicaragua, and Ethiopia; yet, the political appeal of literacy as a policy goal is also apparent in today's resurgence of literacy work in North America and Europe.[7]

A key aspect of solidarity is the utilization of a national language (most often that of the dominant government faction) in the literacy campaign. While tensions can occur as a result of the imposition of a national language on ethnic minorities, the revolutionary fervor of the moment can, at least for some period of time, overcome such barriers. Thus, through national campaigns, governments may achieve a greater degree of homogeneity and national solidarity, even if economic and secondary social consequences are minimal.

4. Endogenous Pressures

In many industrialized countries where campaigns are unlikely to occur, there may be pressures to provide literacy and basic skills programs at the community level. Often organized by NGOs, such as church groups or private voluntary organizations,[8] such programs tend to be small-scale and focused on particular segments of the population (e.g., young mothers, the elderly and

the homeless). In the case of endogenous programs, governments typically have little or no involvement, as the programs are self-funded and tend to rely on volunteer tutors.

The historical rationale for such endogenous literacy programs has been essentially a moral one, in the sense of providing and caring for one's neighbor and community. Even up to the present, these types of literacy programs have predominated in industrialized countries (especially in the U.S.), where governments have until recently claimed that illiteracy, if it did exist, was so marginal as to command little national attention or government financial support. Over the past half-decade, as is well-documented in the press, policymakers' attitudes have changed rather sharply on this point.

5. Exogenous Pressures

Since the establishment of United Nations agencies following World War II, with their special interest in economic development, there has been growing pressure on all nations to improve their performance in education and literacy. This pressure appears in two major ways. First, lending agencies such as the World Bank tend to offer loans only if certain types of educational initiatives are promoted. Over the past decade or so, the promotion of primary schooling has been a centerpiece of World Bank aid to developing countries, although with the EFA a more serious interest in adult literacy has been growing.

Another kind of influence derives from what might simply be termed the *public appearance* issue of being a *progressive* nation. Developing countries such as Zimbabwe, Tanzania and Cuba promote their efforts in literacy as a way of gaining international (as well as national) legitimacy, as does Sweden in terms of its socialized welfare and education benefits. The "public appearance" issue can work for or against countries in certain educational planning situations. A country with a very low literacy rate may become thought of as a hopeless situation or at least a very difficult development context (Somalia or Chad, for example), or alternatively as a country so disadvantaged that major funding is needed to end a vicious cycle of poverty. In the domain of literacy, countries which engage in national assessments can run the risk of showing lower literacy rates than they announced publicly (thereby losing credibility), or can show higher rates than they thought existed (thereby losing claims of dire economic need).[9]

B. The Relevance of Assessment

1. Approaches to the Measurement of Literacy Learning

The importance of measurement and evaluation in literacy is that it offers greater potential efficiency and accountability in literacy provision. While no applied research program is without its own costs, such expenditures must be understood in light of the enormous costs of inefficient and unsuccessful programs. A substantial number of the key questions concerning literacy policy reside in the choices of definitions and techniques for the measurement of programmatic success; literacy programs differ little from other educational or social objectives in this respect. Operational definitions which can be measured and studied are just as necessary for programs that espouse improved math achievement or improved medical conditions as they are for literacy. For reasons that have remained largely unexplored, literacy (and adult education more generally) has usually been spared the scrutiny of sophisticated evaluators with objective measurement tools.[10]

> *It is now evident that development agencies, educational organizations and national governments are eager to rectify this situation by gathering solid and applicable data on adult literacy education programs. At the most general level, there needs to be far better information about national literacy rates than has been available to date. In addition, there is remarkably little information which can guide program improvement, since evaluation methods in adult literacy have been seldom utilized. Finally, at the individual level there is considerable need for a greater understanding of adult learning and instruction in the wide variety of different contexts and cultures where adult literacy work takes place. Each of these perspectives on literacy measurement will be explored below.*

2. CURRENT PROBLEMS IN NATIONAL LITERACY STATISTICS

In order to provide worldwide statistical comparisons, UNESCO has relied almost entirely on data provided by its member countries. These countries, in turn, typically rely on national census information, which most often determines literacy ability by the proxy variable of self-stated years of primary schooling or through self-assessment questionnaires.[11] Many specialists would agree that such measures are likely to be unreliable indicators of literacy ability. Nonetheless, up to the present, systematic national surveys which measure literacy skills have only just begun in a few industrialized countries while little progress at all in national literacy measurement has been forthcoming in developing countries.[12]

A. CLASSIFICATION OF LITERACY LEVELS

The traditional classification of individuals as *literate* versus *illiterate* appears to many observers to be outmoded. Centuries ago it seemed perfectly reasonable for the educated classes to divide up the world as literate and illiterate, and even civilized and uncivilized. Several decades ago, when Third World countries began to enter the United Nations, it was still common to find that the vast majority of the adult population of these countries had never gone to school nor had learned to read and write. Therefore, it was relatively easy in those contexts to simply define all such non-schooled individuals as *illiterate*, even though such terms were inevitably inaccurate.

The situation in the 1990s is much more complex, as some contact with primary schooling, non-formal education programs, and the mass-media is now made by the vast majority of families in the Third World. Indeed, it is the rare society today that includes more than a small number of individuals who, for a variety of idiosyncratic reasons, could be termed *naive illiterates*—those who are unaware of the meaning and uses of reading and writing systems (Wagner, 1986). Furthermore, even if parents may be illiterate and unschooled, it is not unusual for one or more of their children to be able to read and write to some degree, thereby rendering the family unit as *literate* or at least *non-illiterate*.[13] Clearly, the traditional literacy versus illiteracy dichotomy misrepresents the range or continuum of literacy abilities that are common to most contemporary societies. Furthermore, the dichotomy is of little help in providing more than the most crude policy direction, since there is so much variation within and across the terms literate and illiterate. Thus, one may conclude that this distinction—still in use by

international organizations, bilateral agencies and most national governments—should be avoided wherever possible, as it misleads more than informs.

Some specialists have suggested that literacy may be best understood in terms of its functional utility in social context—hence UNESCO's term *functional literacy*.[14] In the 1990s, UNESCO has often employed the term *functional illiteracy* to refer to the problems in industrialized states (UNESCO, 1987). This choice of terms may also confuse matters, by implying that literacy (and the *literacy problem*) is somehow fundamentally and terminologically different in the industrialized world than in the Third World. This view, too, is misleading. Though contexts may vary greatly, literacy problems—however we label them—are fundamentally the *same* in all societies, while varying in the degree of "severity" based on national and political exigencies

Simply put, the problems of insufficient literacy skills have more in common across nations than many people have believed.[15]

Literacy, then, may be seen as a set of individual skills, but these skills may be thought to be sufficient or insufficient, depending on the social, cultural and political context of any given society. Thus, being able to read a newspaper may justify the label of *literate* in one context, but in a second context may be a less relevant measure than a mother's ability to fill in a government health form for her sick child.[16] In the 1986 Young Adult Literacy Survey (Kirsch & Jungeblut, 1986; Venezky, Kaestle, & Sum, 1987), the inability to decipher and interpret a bus schedule or fill out an employment form were citable benchmarks for determining whether an individual was to be considered less than adequately literate.

B. LANGUAGE POLICY, MULTILINGUALISM, AND MULTIPLE LITERACIES

Most countries have formulated an explicit language policy which states which language or languages have official status. The decision on national or official language(s) is usually based on such factors as major linguistic groups, colonial or post-colonial history, and the importance of a given language to the concerns of economic development. Official languages are also those commonly used in primary school, though there may be differences between languages used in beginning schooling and those used later on. The use of mother tongue instruction in both primary and adult education remains a topic of continuing debate (Wagner, 1992).

While there appears to be general agreement that the official language(s) ought to be assessed in national literacy surveys, there may be disagreement over the assessment of literacy in non-official languages (where these have a recognized and functional orthography). In many countries, there exist a multitude of local languages which have varying status with respect to the official language; how these languages and literacies are included in the national survey may be a matter of considerable disagreement. For example, in certain predominantly Muslim countries in sub-Saharan Africa (e.g., Senegal or Ghana), the official language of literacy might be French or English, while Arabic—which is taught in Islamic schools and used by a sizable population for certain everyday and religious tasks—is usually excluded from official literacy censuses.[17]

C. COMPARABILITY OF DATA: BALANCING NATIONAL AND INTERNATIONAL NEEDS

Comparability of data—across time and countries—is a major concern for planning agencies. If definitions, categories and classifications vary, it becomes difficult if not impossible to compare data collected from different surveys. On the other hand, if comparability becomes the primary goal, with little attention to the validity of the definitions, categories and classifications for the sample population in a given country, then literacy data become meaningless. International and national needs have sometimes come into conflict over the issue of comparability.[18]

National planners sometimes wish to know the effects of completion of certain grades of primary or secondary school, or of a literacy campaign, on levels of literacy attainment. In these cases, the traditional dichotomy would be insufficient, since adequate specificity or detail is not available. Furthermore, national planners might want to have precise data as to which languages and which literacies are used by region or ethnic group, in addition to age and gender differences. Collection of such data has largely been ignored by international agencies. Household literacy surveys, because more time may be devoted to in-depth questioning, offer the opportunity to provide a much more detailed picture of literacy and its demographic correlates than has been previously available.[19]

3. NEW EFFORTS TO MEASURE LITERACY

Literacy, as has been noted earlier, is usually defined in terms of the individual's ability to read and write within the context of his or her society. The direct measurement of literacy skills using

assessment instruments provides information on more refined categories than available in self-assessment. While it is theoretically possible to make as many classifications of individuals as there are items in a test, determining the number of useful classification categories is an arbitrary process that relates to the type of policy question one wishes to address and the resources one has to commit to the investigation. UNESCO, as noted above, has used a traditional dichotomy for classifying literates and illiterates, and this is still the current practice of many agencies and countries.

A. STANDARDIZED TEST SURVEYS OF LITERACY

The (1986) Young Adult Literacy Survey (YALS) was the most important national standardized study of literacy undertaken in recent times using direct measurement of skills (Kirsch & Jungeblut, 1986; Venezky, Kaestle, & Sum, 1987). This test survey of 3600 young adults found that a relatively small percentage (less than 5%) of American 21- to 25-year-olds could not read or write, while almost 25% had problems in reading texts which required more than simple decoding—that is texts which required inferences and understanding *across* sentences. One main conclusion of the YALS was that illiteracy—in its most stark form of no reading and no writing ability—is far less of a national problem in North America than low or insufficient literacy skills to meet social and economic needs.[20] Such a conclusion would not have been possible without the kind of detailed test items used by the YALS study. On the other hand, the YALS, and a second American literacy survey currently underway (the National Adult Literacy Survey) cost several million dollars to carry out.

B. HOUSEHOLD SURVEY APPROACH

An alternative approach has been suggested by the United Nations Household Survey Capability Programme (United Nations, 1989).[21] In this approach, which is considerably less expensive than the YALS survey described above, effort is placed on benchmarks of competencies, and classification categories are limited to only four.[22] The purpose of this type of household literacy survey is to provide a classification useful for policy planning purposes only, one that is relatively easy to administer in developing countries and easy to tabulate and interpret results. There are four main classifications of literacy levels suggested, as follows:

NON-LITERATE: *A person may be classified as non-literate who cannot read a text with understanding and write a short*

text in a significant[23] national language, cannot recognize words on signs and documents in everyday contexts, and cannot perform such specific tasks as signing his or her name or recognizing the meaning of public signs.

LOW LITERATE: *A person may be classified as a low literate who cannot read a text with understanding and write a short text in a significant national language, but who can recognize words on signs and documents in everyday contexts, and can perform such specific tasks as signing his or her name or recognizing the meaning of public signs.*

MODERATE LITERATE: *A person is moderately literate who can, with some difficulty (i.e., makes numerous errors), read a text with understanding and write a short text in a significant national language.*

HIGH LITERATE: *A person is high literate who can, with little difficulty (i.e. makes few errors), read a text with understanding and write a short text in a significant national language.*

If a person can engage in literacy practices in more than one significant national language, then he or she should receive a classification for the highest level achieved in a significant language. This relatively straightforward technique for literacy categorization is designed almost exclusively for the policy planner, and is biased toward reducing time and cost, while still maintaining enough skill level and demographic detail to enable social and educational decision making.

4. Assessment of Numeracy

The inclusion of numeracy in discussions of the problem of illiteracy is a relatively recent phenomenon; it is also an area which has received remarkably little attention from researchers. While there is no standard definition comparable to literacy, most observers would agree that numeracy involves the ability to make effective (i.e., mathematical) use of a number system.

While UNESCO (1978) includes "reading, writing and calculation" in its definition of functional literacy, international comparative data has typically been gathered only on reading and writing; indeed, separate indices on numeracy rates for UN

member nations have never been provided. In addition, almost no attention has been paid to the arithmetic part of the definition by international organizations and development planners.[24] Survey information has rarely been gathered on mathematical abilities in Third World countries, and the few literacy evaluations that have taken place which include separate analyses for numeracy generally provide insufficient detail for judging specific numeracy abilities.[25]

In spite of a lack of international agency guidance on the issue of numeracy assessment, there have been a number of recent efforts to include such measures on national surveys, such as that of the work described above on the U.S. literacy survey (1986), the household survey model of the UN (1989), and that of a Canadian survey (1990).[26] Given that numeracy may be as important for workforce productivity as literacy, it is expected that there will be increased interest in this area on the coming years.[27]

C. PROGRAM EVALUATION AND ACCOUNTABILITY

In addition to major efforts to understand literacy levels across individuals, nations, and the world, there is an increasing need to be able to analyze the effectiveness of literacy programs as they currently exist. These efforts, commonly thought of as program evaluation work, constitute an important element in our understanding of literacy and how literacy service provision can be improved and expanded.

As with program evaluation work more generally, literacy program evaluation would normally include formative (on-going) and summative (post-hoc) evaluations. Each of these might include a focus on planning and strategies for literacy work, program implementation and management, student monitoring, attendance and retention, skill acquisition, integration with other agencies, and post-literacy activities. Serious work has been accomplished in some of these areas, mainly in terms of formative studies and post-hoc analyses of management; little work has focused on outcome based evaluation through skill measurement.[28]

With the expansion of interest in literacy worldwide, and with the push of the recommendations of the 1990 WCEFA at Jomtien, far greater attention will be paid to rigorous and in depth evaluation of literacy programs. Indeed, it may be that one of the key problems in expanding public and government support for adult literacy programs in the past has been the failure of those who support adult literacy programs to provide the type of rigorous data demanded of other educational activities (e.g., K-12 education).

Overall, there is a growing need among national and international agencies for accountability in literacy programs. As pointed out in a recent paper comparing the literacy programs of China and Tanzania (Stites & Semali, 1991), there are many reasons for promoting literacy in different countries, usually ranging between arguments for social equality to economic growth. Any effort at providing program accountability will need to be cognizant of the political basis of support for a particular effort, as the outcome variables (such as increased income or employment) will be used to gauge whether the program succeeded or failed.

D. THE ROLES OF AGENCIES AND EXPERTS

UNESCO has, de facto, taken the multilateral lead on international literacy issues, including the establishment of the International Institute of Adult Literacy Methods (IIALM) in Teheran in 1968. UNESCO/Paris has tended to focus on developing country issues, while, in recent years, UNESCO's Institute of Education (Hamburg) has added issues of literacy in industrialized countries to its prior focus on post-literacy efforts, and UNESCO's International Institute for Educational Planning has concentrated on specialized evaluations.[29] There has been relatively less interest from other United Nations agencies in adult literacy, though the World Conference on Education for All has led all of these agencies to take a new look at worldwide literacy efforts. While the 1990 International Literacy Year provided fresh interest in world literacy issues, the demise of the IIALM (with the fall of the Pahlevi regime), and the difficult fiscal situation at UNESCO/Paris continues to leave such issues fragmented among a wide variety of organizations and agencies who have been unable to provide international leadership in adult literacy.

Certain bilateral agencies for international development have played important roles in literacy work, most notably the International Development Research Centre (Ottawa) and the Swedish International Development Agency (Stockholm). Each of these agencies has sponsored numerous projects and support evaluations which have advanced our knowledge in the field. Other major bilateral agencies, such as the German Foundation for International Development (DSE) and USAID (U.S.) have had some involvement in adult literacy programs, but this interest remains small relative to their other investments in education.

E. DEMYSTIFYING THE MYTHS

It is useful to review what we might reasonably call the *four myths of literacy*, each one followed by a dose of what the current state of knowledge tells about its reality. This is not to say that these myths are necessarily and completely erroneous. Until we can add empirical reality to such claims, however, serious programs will founder on the rocks of grossly elevated expectations.

Literacy changes the way humans think, their logical abilities, and their intelligence. This "mental consequences" model of literacy has been around for many centuries, and served for many decades as one of the bases for colonial discrimination against unschooled peoples in the Third World. It is now known that there is no substantive proof to support such an assertion, even though such claims continue to be published today.[30]

Literacy leads to human "modernization" and to the changing of attitudes about "development." This consequence of literacy has been a mainstay of international development work. Insofar as literacy, in modernization studies, has rarely been separated from schooling itself,[31] it has not been determined whether literacy has specific effects. Many studies have determined that years of schooling lead to attitudinal changes and involvement in the national development process (in developing countries), but these studies have not been able to determine how schooling affects attitudes, or whether it simply opens up opportunities which then affect attitudes.[32]

Literacy fosters democratic ideals, and increases national productivity. These most positive of conjectures have only ancillary support in the current research literature, even though many specialists and much of the public believe the claims to be true. Democracy can hardly exist without an informed populace, and printed material remains the primary source of information about national and world events.[33] Similarly, it is difficult to imagine an economy in today's world that could expand significantly with an illiterate or low literate population. While democratic consequences might be difficult to substantiate, economic ones ought to be better understood when better assessment techniques become more common in both industrialized and developing countries. The belief in this double claim might then turn out to be justified wholly, or need to be

contextualized according to particular social realities. Adequate data to justify such beliefs (and hopes) is awaited.

Illiteracy will be eradicated by the Year 2000 (or anytime soon). The available data suggest that illiteracy (or low literacy) is unlikely to be eliminated in the foreseeable future, whatever date is picked. Agencies and specialists have occasionally proclaimed a given date as a *target* for planning purposes, and there is some political value in this approach.[34] The major fallacy with this claim is that the definition of literacy will never remain a constant. Societies are continuing to define and redefine the term literacy as the needs for intellectual skills change across time and contexts. It is far more likely that there will be low literates (or functional illiterates) for many decades to come, and probably forever, even if the number of *naive illiterates* continues to fall with the concomitant rise of primary schooling and effective adult literacy programs.

These four common myths, integrated into what might be called a national and international ideology, help to sustain the political and social support for literacy work, but the lack of solid evidence undergirding the claims should lead to concern as well. Specialists are much more in need of knowledge about the covariation of variables leading *to* and *from* literacy than they are in need of grandiose conclusions (or rather conjectures) about literacy's effects. Media and campaign advisors may need, for political reasons, to simplify and convince; but it is crucial for all those concerned with making real and long-term gains in literacy to understand what can be achieved with *X* amount of time and *Y* amount of resources.

Significant progress can and will be made in creating a more literate world, if current trends persist.[35] There seems, for this decade at least, to be the will and the fiscal support to improve literacy in all countries around the world. Making the most effective use of the available resources would appear to be the principal challenge. In the section that follows we consider several ideas which may be key in promoting innovation in literacy work.

F. INNOVATION IN LITERACY WORK

1. TECHNOLOGY

Any commentary purporting to treat the future of literacy development would be remiss without some treatment of technology. There are new and exciting ideas concerning the utility of technology for literacy provision to both children and adults. Much of this work is still in its infancy, such as efforts to utilize synthetic speech to teach reading, or the use of multimedia displays (interactive video, audio tapes, and computer displays) to provide much more sophisticated instruction than has been heretofore available. Technological solutions to instruction—known as computer based education (CBE) or computer assisted instruction (CAI)—have been used, primarily in industrialized nations, for more than a decade, and the presence of microcomputers in the classrooms of schools has continued to grow at a phenomenal rate.[36] With adult instruction, growth of CBE and CAI has recently begun to show similar growth patterns, but it remains limited to a few sectors in a limited number of countries.[37] Especially promising is the use of CBE and CAI in second language/literacy instruction.

As many have pointed out, the cost of technology has been too high even for industrial country's educational programs, not to mention the Third World. But the price-to-power ratio (the relative cost, for example, of a unit of computer memory or the speed of processing) continues to drop at an astounding rate. While the cost of the average microcomputer has remained constant for about a decade, the power of the 1990 computer is 10-100 times greater than that produced in 1980. If present trends continue, by the year 2000, the capabilities for CAI and CBE literacy instruction are likely to go far beyond the elementary approaches of today.

2. MULTI-SECTORAL APPROACHES

Literacy and numeracy skills are utilized in many life contexts outside of academic settings. To date, however, most research and development has focused primarily on school-based settings. A major challenge rests in determining the ways that literacy can be fostered and utilized in everyday family and work settings. From a policy perspective, more needs to be known about how literacy education can be infused into the significant development work of other sectors, such as agriculture and health.

For example, there is growing support for use of the idea of a comprehensive literacy *service center* to provide educational training to other sectors' workers, such as agriculture and health. Few examples of this approach have been attempted, and little is known about their potential impact.[38] In the agriculture and health sectors, literacy is a major vehicle for innovation and knowledge dissemination, yet few studies have explored what levels of literacy determine the effectiveness of such dissemination.

Finally, there is an increasing sense that adult literacy programs have been unnecessarily separated from other educational services for families. Thus, there are, in industrialized and developing countries, attempts to link adult programs with those of early childhood development. This is happening in such diverse locales as Bangladesh (the BRAC program) and in the U.S. (in Head Start programs for preschoolers). More attention is also required on all aspects of *intergenerational* or family literacy programs, now becoming popular in North America (Sticht, et al, 1991).

3. Design of Materials

Increasing textbook provision has been viewed by donors and ministries of education as a key strategy for the improvement of school instruction.[39] However, rather little is known about how the design of instructional materials influences comprehension and learning. There are enormous subject matter and national variations in conventions of text design. Some important work on the relationship between characteristics of textbook discourse and comprehension is being carried out that has implications for improving school textbooks, as well as materials for other sectors, but there is a critical need for the collection, summarization, and dissemination of existing materials used by literacy programs in non-formal settings.

4. Mother Tongue and Second Language Issues

In developing countries, a significant proportion of the students are either illiterate in their mother tongue or receive only a few years of mother tongue instruction before a second, usually foreign, language is introduced as a medium of instruction. Poor second language literacy proficiency is a cause of high repetition and wastage rates, and of low achievement in academic subjects in primary and secondary schools with profound consequences for employment and other externalities of schooling.

Because of the significant debate on first and second language/literacy policy, many donor agencies and developing country officials have been reluctant to review language/literacy policies. However, there are a number of important areas of work which need to be addressed beyond the confines of the debate over *which language/literacy should come first.* For example, more needs to be known about such issues as: (1) whether (or under what conditions) mother tongue literacy should be a precondition for the introduction of second language literacy in school-based and non-formal settings; (2) how the implementation of language of instruction policies affects literacy after schooling; (3) the effects of using second language literacy in school on wastage and grade repetition; (4) the implications of using the second language literacy for academic subjects like mathematics, science, health, nutrition, and agriculture; and (5) skill retention of mother tongue and second language literacy skills in daily life after leaving school.

5. Sustained Leadership

As mentioned earlier, the UNESCO's International Institute for Adult Literacy Methods (IIALM) was established in 1968, and it functioned for about a dozen years. While its budget was never large, the IIALM served as a catalyst for sustained interest in adult literacy, with a particular focus on the Third World. Since its demise in the early 1980s, there has been relatively little leadership (and certainly fewer resources in constant monetary terms) for literacy on an international scale. With the advent of International Literacy Year in 1990, as well as the EFA initiative by the United Nations and bilateral agencies, it would seem that the time has come to resuscitate leadership in the field of international literacy. There needs to be one or more agencies which will take principal responsibility for supporting new thinking and initiatives in the field of literacy (in both the adult and intergenerational senses of the term). Until this happens, the field is likely to remain fragmented and will lack the ability to learn cumulatively from prior experience.[40]

G. Conclusions

With the universalization of primary schooling, the world of illiteracy is expected to diminish over the next century. Indeed, the number of *naive illiterates*—those with no knowledge that literacy exists and with no knowledge of the uses of literacy by others—is dwindling toward zero as we approach the year 2000. Yet the number of illiterates is not expected to decline much at all through the next decade (see Figure 1).

But, as many observers have noted, the absolute numbers of individuals with low literacy skills (e.g., with only a few years of primary schooling) continues to increase in many parts of the world. One major implication for the future is that policy attention will focus less on providing minimal literacy skills than on which kinds and what levels of literacy skill are required for each society (and specific groups within societies). Some known examples are present in today's industrialized countries, where, for example, the need for basic arithmetic skills have been largely replaced by the handheld calculator. Even spelling instruction and practice—the focus of a great deal of school time in Western primary schools—is beginning to see the effects of spell-checking microcomputers for children. Why memorize spelling rules when the computer is faster and more accurate? While there is still debate among researchers on this issue, the advent of high technology is compelling social change even before specialists have engaged in the requisite research.

What can be done about this difficult situation? Most importantly, agencies which support or engage in literacy work need to be more realistic about what can be achieved. Such realism implies lowering expectations about major changes in both personal and economic outcomes, while at the same time holding literacy service providers to higher standards of accountability and professionalism. As in K-12 education, literacy work hides no magic answer for any society, but is part and parcel of what human development is required for all aspects of national development. This paper has attempted to highlight some of the stumbling blocks to improved literacy work, what connections might be made to other sectors such as health and child development, and what innovations are appearing on the horizon. Future literacy work will require sustained and concerted effort. The

importance of literacy and schooling in the personal and social development of educated persons the world over is difficult to overestimate. We the educated take literacy as a fundamental part of our existence. The simple fact that even today nearly one-quarter of humanity lacks such an essential—and obtainable—set of skills still surprises many of us. It will be striking in the year 2000 and all the more striking in the year 2025, if we have been unable to substantially improve this situation.

ENDNOTES

1 Several rationales are taken from a useful summary prepared by Lind and Johnston (1990). For further recent discussion of the multilateral rationale for literacy, see Tanguiane (1990), and for broader educational investments, see Haddad, et al. (1990). Also see several chapters in Wagner and Puchner (1992).

2 On developing countries, see Anderson and Bowman (1965) for their estimate of the literacy threshold for economic development. On Canada, see Southam Press (1987).

3 See Haddad, et al. (1990) for additional discussion and data concerning the "returns to educational investment."

4 See, for example, Benton and Noyelle (1991) and Tucker (1990).

5 See text by Puchner for this workshop. Also, see Cochrane (1980, 1982), and LeVine (1987).

6 This type of argumentation is particularly evident in the U.S., where a key rationale for adult literacy efforts is to reduce the *social costs* of individual who simply do not *make it* in American society; see, for example, Kozol, 1985.

7 See Arnove and Graff (1987) for a history of various socialist campaigns. The resurgence of interest in literacy in North America and its political overtones may be seen in Chisman (1990).

8 An example of a large private voluntary organization which deliver literacy instruction worldwide is Laubach Literacy International based in Syracuse, New York in the U.S.

9 See Wagner (1990b) for a discussion of the potential effects of national assessments on the politics of lending in Zimbabwe and Morocco.

10 It is unclear why literacy programs have received such scant evaluation and scientific attention in both industrialized and developing countries. One possible explanation, of course, lies in the fact that so few resources have been devoted to adult education programs, and when resources have been available, especially in developing country contexts, these resources have typically been utilized in campaigns whose primary goal was social impact rather than programmatic or scientific understanding.

11 In the case of *self-assessment*, the individual is simply asked, as part of a national or regional census, such single questions as "Are you literate?" or "Can you write your name?" The individual responding "no" is then classified as *illiterate*. In other cases, where such questions are not used or where they are not thought to be credible, the individual is simply classified as *illiterate* if she or he has not, by the age or 15 or 16 years, completed primary school (five grades of elementary schooling). Those individuals who may have completed four grades, taking as much as seven years to complete them, might still be classified as *illiterate*. Many countries which do not have recent census information utilize available statistics on primary school attendance, and simply calculate the percentage of primary school

completers as new *literates* added to the population. These statistics are then forwarded to Unesco's Statistics Office.

12 Among the few developing country national surveys was that prepared in Kenya in 1985, and that begun in Zimbabwe in 1986. The World Bank is currently funding such a project in Morocco.

13 The term *non-illiterate* may seem, for English speakers, absurd, since it is a double negative. However, in French and Arabic, the term *illiterate* has much broader meaning and understanding than the term *literate*. Thus, it a person who is *non-illettré*, is more easily understood than the term *lettré*, which most often connotes someone who is highly educated or scholarly. Similarly, in Arabic, the term *literate* actually derives from the negative of the term for *illiterate*.

14 See Levine (1982) and Hunter and Harman (1979) for in-depth discussions of the term functional literacy.

15 Also, there is growing evidence that *functional* or everyday skills may not differ very much from the more testable school-based skills. In two recent studies—one in the United States and the other in Morocco—it was found that the correlation between school-based and everyday skills was quite strong. Kirsch and Jungeblut's (1986) NAEP study in the United States showed a very high correlation ($r = .61$) between school-based and functional literacy items. In the Morocco study, Spratt, et al. (1991) found a similar level of overlap, with $r = .57$ and $r = .43$ for two different cohorts of school children. These high and significant correlations suggest that there is a great deal of shared variance between measures that purport to be *everyday* and those that are thought of as *school-based*. One must conclude therefore that some specialists' (e.g., Gilmore, 1986) claims that school-based measures are *irrelevant* to everyday literacy tasks may be misplaced and inaccurate.

16 See Spratt, et al. (1991) for a discussion of functional literacy and its measurement in Morocco.

17 Recent unpublished information suggests that in countries like Senegal there is now more receptivity to literacy assessment in *unofficial* literacies and languages.

18 For example, as noted earlier, Unesco typically measures literacy in terms of the percentage of *literates* and *illiterates* in national adult populations. For most countries, this type of classification presents few problems at the level of census information, and it provides Unesco and other international agencies with a cross-national framework for considering literacy by geographic or economic regions of the world. Yet, as also discussed, these data need to be interpreted with considerable caution.

International assessments of educational achievement have also taken place over recent years in selected countries, in such educational domains as mathematics, literature, and literacy (See Husen, [1967] for an international assessment of mathematics). These surveys include standardized tests composed and created by panels of experts, and are far more detailed than the traditional dichotomy described above. On the other hand, the comparability factor is so important, since these surveys are designed to rank order countries on a common scale, that contextual and linguistic distinctiveness is sometimes lost. International assessments, to date, have also tended to favor the educational interests of industrialized

nations (who typically provide most of the funding), so that developing country interests often are of lesser priority.

19 See Wagner (1990) and the United Nations (1989) for a detailed proposal on national household surveys of literacy. A recently published example of a national literacy survey using this and related methods was carried out in Lesotho; see Ziegahn, (1992).

20 A recent Canadian study used substantially the same methodology, with similar results. See Statistics Canada (1990), Neice & Adsett (1991). The move toward literacy assessment in Canada was instigated by a highly publicized survey done by a major Canadian newspaper chain; see Southam (1987).

21 Zimbabwe and Morocco have utilized the NHSCP literacy survey schema.

22 A similar set of four levels was developed by Statistics Canada (1990) in its national survey of Canadian adults. See also Neice and Adsett (1991).

23 In this type of survey, a *significant* language is said to be one which has been designated as a national language already, but could also include languages which do not yet have such designation but are utilized by a significant ethnic group within national boundaries. An example would be Arabic speakers/literates in Senegal, before Arabic was recognized as a national language.

24 Girodet provides one of the very few studies of this sort which attempts to take into account the mathematical systems currently in use in several sub-Saharan African countries; see Girodet (1983).

25 The only solid literacy evaluation in a developing country which included separate numeracy analyses was that undertaken in Ethiopia; see Sjostrom and Sjostrom, (1983). Most of the international comparative research on mathematics achievement comes from cross-national studies focused primarily on industrialized nations; see Comber and Keeves, (1973); and Husen, (1967). There are other reports as well, which indicate that practice with numbers, even in unschooled youth or adults, can lead to higher levels of numeracy, e.g., Carraher, Carraher, & Schliemann, (1985); and Ginsburg, Posner, & Russell, (1981).

26 The work of Wagner (1990a) on schemas for low-cost household surveys provides a method for developing assessment tools on numeracy as well as reading and writing.

27 For example, the newly established U.S. National Center on Adult Literacy (NCAL) will soon begin a major study in the area of worker numeracy skills.

28 See, for example, Carron and Bordia (1985), Lind and Johnston (1986), and Bhola (1990) for overviews; some exemplary national case studies of literacy programs have been undertaken, such as Lind (1988) in Mozambique, International Institute for Educational Planning (1991) in Kenya, and Miller (1985) in Nicaragua.

29 For Unesco publications, see References; for IIEP, see for example, Carron and Bordia (1985) and Carron et al. (1989).

30 Scribner and Cole (1981), cited earlier, provided the primary data to refute the claim of major cognitive consequences stemming from literacy acquisition.

31 Indeed, in many studies, schooling served as the proxy variable which defined whether a person was literate or not. See Inkeles and Smith (1974), Lerner (1964), and Jamison and Moock (1984).

32 Ibid. It is not trivial to ask how schooling might affect attitudes. If it is through opportunities for personal advancement (not unrelated to a person's social and economic standing), then it does not following, for example, that adult education classes which teach only literacy will have the same *positive* effects as, say, primary schooling.

33 In some developing countries, especially in areas of low literacy, television and radio have supplanted printed material as the chief source of *outside* information.

34 See Stites and Semali (1991) for an interesting discussion of the negative consequences of such political rhetoric in Tanzania and China over recent decades.

35 Unesco claimed in 1991 that the number of illiterates has gone down for the first time in history.

36 For a review of CAI for classroom use, see Venezky and Osin (1991).

37 The best know CAI system for adult literacy in the U.S. was created under the sponsorship of International Business Machines, Incorporated (IBM). This program, based on a similar method for teaching beginning reading to young children (known as *Writing to read*) has had some success in the marketplace, but its cost (over $100,000 per installed multi-station unit) has made it a difficult purchase for American literacy programs, even with government support. Of course, the fact that technology is changing so rapidly also tends to dampen such large investments, since, as was the case with the IBM system, the hardware upon which the program was based became obsolete in a short time.

38 The Literacy Research Center of the University of Pennsylvania has just begun a project to establish the service center approach in three African countries. See also, Eisemon (1988).

39 See Heyneman and Jamison (1980) on the suggestion that textbook availability is an important element of development in education.

40 An example of leadership in the field of early childhood is the Consultative Group on Early Childhood Development, which has been supported by various agencies and foundations, and has been housed for almost a decade within Unicef in New York..

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This volume provides a set of case studies on adult literacy campaigns, beginning with the 16th century in Sweden, through the Leninist campaign after the Russian Revolution and into the socialist campaigns in the mid-20th century. The Soviet and Chinese cases are particularly revealing in terms of the clarification provided on the nature of literacy work before the campaigns began.

Benton, L., & Noyelle, T. (1991). *Adult literacy and economic performance in industrialized nations.* New York: Eisenhower Center for the Conservation of Resources, Columbia University.

This volume, commissioned by OECD, provides case studies of adult literacy and adult basic education programs in a number of European countries (including France, Great Britain, and Sweden among others) and the U.S., with comparative data on economic performance. While the economic analyses suffer from the problems of correlational data, these country studies help to clarify adult literacy work and their relationship to national economic policy in many of the leading industrialized states.

Carron, G., & Bordia, A. (Eds.). (1985). *Issues in planning and implementing national literacy programmes.* Paris: UNESCO/IIEP.

This edited volume provides a useful compendium of case studies of literacy programs in selected Third World countries. Most of the writing focuses on organizational and policy issues, with relatively little attention paid to evaluation issues.

Coombs, P. H. (1985). *The world crisis in education: The view from the eighties.* New York: Oxford.

This book is an important synthesis of educational development work, with a significant focus on non-formal and adult education. A number of the key issues facing both developing country specialists and development agencies are carefully analyzed, including the importance of better literacy statistics and program evaluation methods.

Goody, J. (Ed.). (1968). *Literacy in traditional societies.* Cambridge: Cambridge University Press.

This edited volume, now almost a quarter-century old, helped to revitalize the academic field of literacy studies. Goody and a number of chapter authors proposed that literacy needs to be understood in cultural context and that it is not a monolithic entity.

Inkeles, A., & Smith, D. H. (1974). *Becoming modern.* Cambridge, MA: Harvard University Press.

A now-classic volume on socio-psychological perspectives on the nature of development, seen and analyzed from the perspective of individual development. One key aspect of the authors' model is that literacy, in particular, can play an important part in development, as it opens up new channels of information likely to change the beliefs of peoples in developing countries.

Jamison, D. T., & Moock, P. R. (1984). Farmer education and farm efficiency in Nepal: The role of schooling, extension services, and cognitive skills. *World Development,* 12, 67-86.

This is one of a small handful of studies which focus on the role of literacy (and education) in promoting agricultural productivity. Based on survey work in Nepal, this study claims that additional years of primary schooling have a direct impact on productivity. Certain methodological problems limit the study's usefulness in making the claim that literacy, per se, is the factor driving productivity.

Kirsch, I., & Jungeblut, A. (1986). *Literacy: Profiles of America's young adults.* Final report of the National Assessment of Educational Progress. Princeton, NJ: ETS.

This is a report on the first well-designed national literacy assessment in the U.S. The results of the study of more than 3000 youth, aged 16-25 years, indicates that low-literacy is a major problem for almost 25% of the national sample. An expanded national study is currently being undertaken by the Educational Testing Service (ETS).

Lind, A., & Johnston, A. (1990). *Adult literacy in the Third World: A review of objectives and strategies.* Stockholm: Swedish International Development Agency.

This review was undertaken with the support of the Swedish International Development Agency (SIDA), prepared during the UN International Literacy Year. The small book provides a useful summary of the major issues facing literacy programs in developing countries.

Scribner, S., & Cole, M. (1981). *The psychology of literacy.* Cambridge: Harvard University Press.

This book reports a multi-year study of literacy skills in out-of-school youth and adults in Liberia. The study was important in demystifying the impact of literacy on human cognition. Until its publication, it was assumed by many (from scholars to aid agencies) that literacy could fundamentally change the way people think—that literacy opened a qualitatively different way of analyzing the world. The empirical work in this book supported a much more limited set of consequences of becoming literate.

Street, B. V. (1984). *Literacy in theory and practice.* London: Cambridge University Press.

Prof. Brian Street is an anthropologist who has worked at developing a distinction between literacy seen in autonomous (or skill-focused) terms versus an ideological (culture-based) perspective. In this way, Street has been critical of literacy programs that do not sufficiently take into account the cultural context and social beliefs of the people who learn and use literacy skills. This volume is based, in part, on field work undertaken in Iran before the Islamic revolution.

Tucker, M. (1990). *America's choice: High skills or low wages!* Syracuse, NY: Center for Education and the Economy.

This book is, by title and content, a manifesto in support of worker training in America. The thesis is that the U.S. is losing in global economic competition due to the limited skills of its workforce. The volume has had a significant impact on policy discussions in America and in OECD countries.

UNESCO. (1990). *Compendium of statistics on illiteracy*. UNESCO Statistical Reports and Studies No. 31. Paris: UNESCO Office of Statistics.

UNESCO is the principal collector of statistics on literacy and education worldwide. The organization also occasionally produces focused publications on the specific areas of literacy and illiteracy. This booklet, produced during the UN International Literacy Year comprises the latest statistics available on a global scale. It also contains projections for the next decade.

United Nations. (1989). *Measuring literacy through household surveys: A technical study on literacy assessment and related topics through household surveys*. National Household Survey Capability Programme. United Nations, NY.

The United Nations Statistical Office has undertaken a number of projects dealing with the use of household surveys for development purposes. In the mid-1980s they commissioned a project in Zimbabwe to see whether a model survey of literacy use and skill in the home could be developed. This volume is a generic description of the model used in Zimbabwe and other countries using similar methods. Written principally by D. A. Wagner (consultant), this volume has been partly responsible for the increased interest in direct measurement methods of literacy assessment in developing countries.

Venezky, R., Wagner, D. A., & Ciliberti, B. (1990). (Eds.). *Toward defining literacy*. Newark, De.: International Reading Association.

The definition (or definitions) of literacy have been a major stumbling block to discussions of policy in America. This book comprises the thinking of some of the foremost U.S. scholars on the topic, including commentaries and critiques. Included among the authors are: J. Chall, C. Kaestle, and I. Kirsch.

Wagner, D. A. (Ed.). (1987). *The future of literacy in a changing world*. New York: Pergamon.

This volume stemmed from a major international conference held at the University of Pennsylvania which brought together two dozen experts on literacy from around the world. The volume contains both theoretical and empirical research on literacy, in children and in adults.

Wagner, D. A. (1992). *Literacy: Developing the future*. UNESCO Yearbook of Education, 1992, Vol. 43. Paris: UNESCO.

This small volume was commissioned by UNESCO for the UN International Literacy Year in 1990. It provides an accessible review of the major issues in literacy development in children and adults in both industrialized and developing nations. The author covers such issues as definitions, international statistics, multilingualism and literacy, learning and instruction, skill retention, technology, and policy development.

Wagner, D. A., & Puchner, L. D. (Eds.) (1992). *World literacy in the year 2000*. Philadelphia: Annals of the American Academy of Political and Social Science.

This volume stemmed from the second Penn international literacy conference, held in honor of the UN International Literacy Year in 1990. This conference brought more of a policy focus to the discussions, and included a number of the major participants in the WCEFA-Jomtien conference.

World Conference on Education for All (1989). *Meeting basic learning needs: A new vision for the 1990s*. Background document, Draft B. New York: United Nations.

This document and others related to the WCEFA-Jomtien conference stand as the documentation basis for the 1990's efforts to increase basic education and literacy worldwide. This document has been widely discussed and debated and will remain a useful point of departure for discussion on these topics for years to come.

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APPENDIX

Table 1 *Adult illiterates (age 15 and over) and illiteracy rates*

Table 2 *The effect of an additional year of schooling on wages and farm output, selected countries and years*

Table 3 *Numbers and rates of illiterates aged 15+*

Figure 1 *Numbers and percentage of adult illiterates 1950–85 and projection to 2025, developing world*

TABLE 1

Adult illiterates (age 15 and over) and illiteracy rates

	Adult illiterates (in millions)				Illiteracy rates (%)				Decrease 1970-2000
	1970	1985	1990	2000*	1970	1985	1990	2000*	% points
WORLD TOTAL	890.1	965.1	962.6	942.0	38.5	29.9	26.9	22.0	-16.5
DEVELOPING COUNTRIES	842.3	908.1	920.6	918.5	54.7	39.4	35.1	28.1	-26.6
of which:									
Sub-Saharan Africa	115.0	133.6	138.8	146.8	77.4	59.1	52.7	40.3	-37.1
Arab States	49.7	58.6	61.1	65.8	73.5	54.5	48.7	38.1	-35.4
Latin America/Caribbean	43.0	44.2	43.5	40.9	26.2	17.6	15.2	11.3	-14.9
Eastern Asia	324.1	297.3	281.0	233.7	46.8	28.7	24.0	17.0	-29.8
Southern Asia	302.3	374.1	397.3	437.0	68.7	57.7	53.8	45.9	-22.8
DEVELOPED COUNTRIES	47.8	57.0	42.0	23.5	6.2	6.2	4.4	2.3	-2.3

* = projected
Source: UNESCO (1990b)

TABLE 2

The effect of an additional year of schooling on wages and farm output, selected countries and years

Country and year	Percentage increase in wages: Male	Percentage increase in wages: Female	Percentages increase in farm output	Sources
Côte d'Ivoire, 1987		12 P 21 S		Van der Gaag and Vijverberg 1987
Ghana, 1988/89		5		Glewwe 1990
Korea, Rep. of, 1976, 1974		6	2	Lee 1981, Jamison and Lau 1982
Indonesia, 1986	8	12 S		Behrman and Deolalikar 1988
France, 1987		11		Riboud 1985
Peru, 1986	13 8	12 P 8 S	3	King 1989, Jacoby 1989
Malaysia, 1987	16	18	5	Jamison and Lau 1982, World Bank data
Nicaragua (urban), 1985	10	13		Behrman and Blau 1985
Philippines, 1980		18		Griffin 1987
Spain, 1979		10		Hernandez-Iglesias and Riboud 1985
Thailand, 1986; 1973	17 7	13 P 25 S	3	Schultz, forthcoming; Jamison and Lau 1982
United States, 1967				Smith 1979
Whites	6	7		
Blacks	5	11		

P, primary school level.

S, secondary school level.

Note: These results were all estimated controlling for other factors such as work experience and other individual characteristics. In most cases, the estimated effects have also been corrected for any statistical bias resulting from selecting a sample of wage earners only. The estimates for Côte d'Ivoire, Ghana and the Republic of Korea pertain to combined samples of men and women.

Source: World Development Report, 1991.

TABLE 3

Numbers and rates of illiterates aged 15+

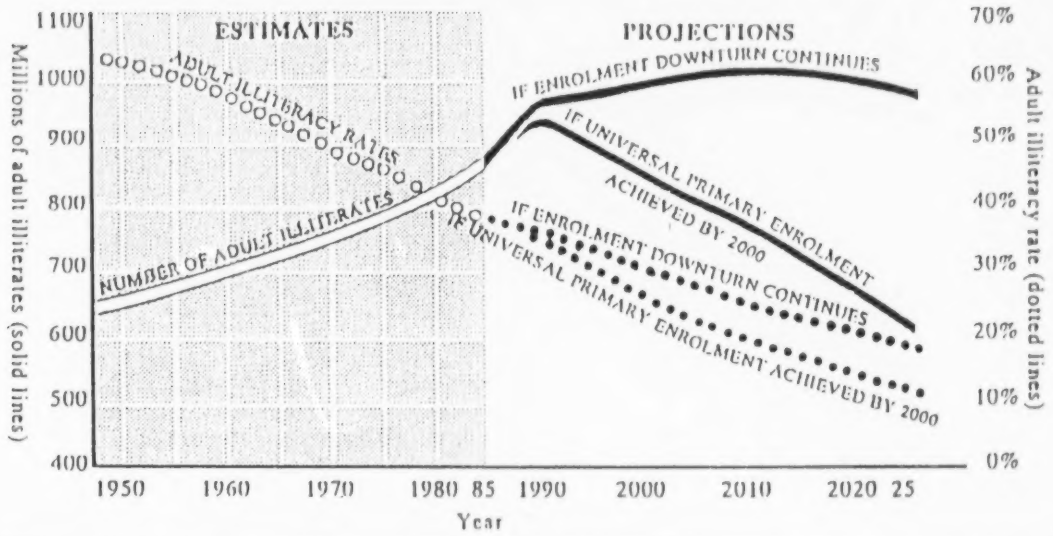
Country	Illiteracy rate (1985) (%)	Number of illiterates (000)	Proportion of world total (%)	(Cum. %)
A. Countries with more than 10 million illiterates				
India	56.5	263,609	29.7	29.7
China	30.7	229,175	25.8	55.5
Pakistan	70.4	39,408	4.4	59.9
Bangladesh	66.9	37,274	4.2	64.1
Nigeria	57.6	27,429	3.0	67.1
Indonesia	25.9	26,438	2.9	70.0
Brazil	22.3	19,085	2.1	72.1
Egypt	55.5	16,053	1.8	73.9
Islamic Rep. of Iran	49.2	11,995	1.3	75.2
World total	100.0	890,466		
Sub-total (9 countries)	75.2	670,466		
Other countries	24.8	220,000		

Country	Illiteracy rate (1985) (%)	Number of illiterates (000)	Female illiteracy rate	Male illiteracy rate
B. Countries with illiteracy rates of 70% or higher				
Somalia	88.4	2,771	93.5	81.6
Burkina Faso	86.8	3,776	93.9	79.3
Yemen	86.3	3,090	96.9	73.1
Niger	86.1	2,815	91.4	80.6
Mali	83.2	3,604	89.0	77.1
Afghanistan	76.3	7,605	92.2	61.1
Gambia	74.9	285	84.9	64.4
Chad	74.7	2,146	89.1	59.5
Nepal	74.4	2,892	88.1	61.3
Benin	74.1	1,630	84.3	63.3
Senegal	71.9	2,565	80.9	62.6
Guinea	71.7	2,297	82.8	60.3
Sierra Leone	70.7	1,568	78.7	62.2
Pakistan	70.4	39,408	81.4	60.1

Source: UNESCO (1990b)

FIGURE 1

Numbers and percentage of adult illiterates 1950–85
and projection to 2025, developing world



Sources: Population estimates and projections: UN Population Division
Literacy estimates: UNESCO
Literacy projections: based on current enrolment estimates provided by UNESCO and projected according to the two assumptions described above.